

11.—*Hakea rubriflora* (Proteaceae), a new species from Western Australia

by Byron Lamont*

Manuscript received and accepted 21 March 1972

Abstract

A new species of *Hakea*, *H. rubriflora*, is described. This species has affinities with *H. pritzelii* and *H. prostrata* but the inflorescence and floral morphology of *H. rubriflora* are quite distinct. *H. rubriflora* is widespread in the Stirling-Eyre District of Western Australia.

Introduction

Plants of a previously undescribed species were included in a study by the author of the root systems of *Hakea* species in south western Australia. This species was first collected by Gardner and Blackall in 1928, but these specimens, as well as those collected subsequently, were regarded as a form of *H. prostrata* R.Br. All material collected by the author, together with that already held at the Western Australian Herbarium (PERTH) and the University of Western Australia (UWA), conforms to the description given here. The description is based on specimens from the type population on the northern sandplain bounding the Stirling Range.

Hakea rubriflora Lamont, sp. nov.

Section *Hakea*: Series *Glabriflorae* (after Bentham, 1870).

Frutex 2-3 m altus. Ramuli divaricati, flexuosi, irregulati obtusanguli, flavidi vel rubri. Cortex lacvis. Ramuli et folia juvenes trichomatibus brevibus appressis. Folia elliptica (3:1) vel obovata (6:5), apice rotundata vel acuta, basi decurrentia cuneata vel cordata, 2-5 cm longa, 1-3 cm lata; margines dentatae, rarius denticulatae vel integrae, sclerenchymatae. Florae ternae aggregatae in axillaribus annotinis, duae ad folium accedentes, tertia ad caulem, foetidae. Squamae ad infimum pedunculi pusillae et paucae, caducae. Torus rectus. Pedunculi 1 mm, glabri. Pedicelli 4-7 mm, glabri. Tubus perianthii sub limbo revolutus, ad flexum 0.9-1.4 mm. Segmenta perianthii ad maturitatem secedentes et e pedicello 20-30° sursum flexi, abaxialiter vitellini, adaxialiter rutilantes, margines atrosanguineae. Limbi segmentum superiorum reflexi, inferiorum lateriflexi, in senectute torti, parum concavi, cremei tandem atrosanguinei. Nectarium truncatum, latissime 1.2 mm, depressicne rubrotincta. Loculi antherorum linearis paralleli, connectivo procurrente. Pistillum e pedicello 30-40° deorsum flexum. Stipes obturbinatus, sulco perspicuo longitudinale per ovarium et stylum currente, 1.6 mm latus. Stylus crociaeformis, filiformis, perianthium breviter excedens, 1.1-1.7 cm latus,

versus ovarium ruber rosae. Praebitor pollinis obconeus rectus; discus parum convexi. Fructus ovatus (2.4-3.1), apice late acute, margine adaxiale quam abaxiale rotundiore, 2-3 cm longa, 0.8-1.2 cm lata, 0.8 cm crassitudo, pagina rugosa; appendices non nisi suturarum margine vel carentes, 0.5-1.5 cm longa. Semen apice asymmetricum acutum, basi rotundatum, 1.7-2.2 cm longum; nucleus 6-8 mm; ala in margine supera leviter decurrens, 1.1-1.4 cm longa.

Divaricate shrub, 2-3 m tall. Branchlets flexuose, irregularly obtuse-angled, yellow to red. Bark smooth. Trichomes short appressed on young stems and leaves. Leaves elliptic (3:1) to obovate (6:5), apex rotund to acute, base decurrent, cuneate to cordate, margins dentate, rarely denticulate or entire, sclerenchymatous, length 2.5 cm, breadth 1-3 cm. Inflorescence an axillary cluster of three flowers, two towards the leaf, the other towards stem; borne on previous season's branchlets. Flowers with foetid odour. Scales at base of peduncle small and few, caducous. Torus straight. Peduncle 1 mm, glabrous. Pedicels 4-7 mm, glabrous. Perianth tube revolute under the limb, 0.9-1.4 cm to summit. Perianth segments linear, separating as they mature to recline upwards 20-30° from axis of pedicel, abaxial surface dull yellow, adaxial surface orange-red, margins red-black. Limb of upper segments reflexed, and of lower segments recurved, twisting during senescence, slightly concave, cream becoming red-black. Nectary truncate, 1.2 mm at widest diameter, concavity tinged red. Pollen sacs linear and parallel, with connective slightly exceeding anther. Pistil reclined downwards 30-40° from axis of pedicel. Stipe obturbinate, with distinct longitudinal groove which may continue through ovary and style, 1.6 mm long. Style crozier-like, filiform, slightly exceeding perianth, length 1.1-1.7 cm, increasingly rose-red towards ovary. Pollen presenter obconical, straight; disc slightly convex. Fruit ovate (2.4-3:1), apex broadly acute, adaxial margin more rounded than abaxial, length 2-3 cm, breadth 0.8-1.2 cm, width 0.8 cm, surface wrinkled, appendages, if present, restricted to edge of sutures, length 0.5-2 mm; apex of seed asymmetrically acute, base rounded, length 1.7-2.2 cm; nucleus 6-8 mm; wing slightly decurrent along upper margin, length 1.1-1.4 cm.

Herbarium Material

Holotype: 28 miles east of Cranbrook, north Stirling Range. 21 Oct. 1971, Lamont 1034 (UWA).

* Botany Department, University of Western Australia, Nedlands, 6009.

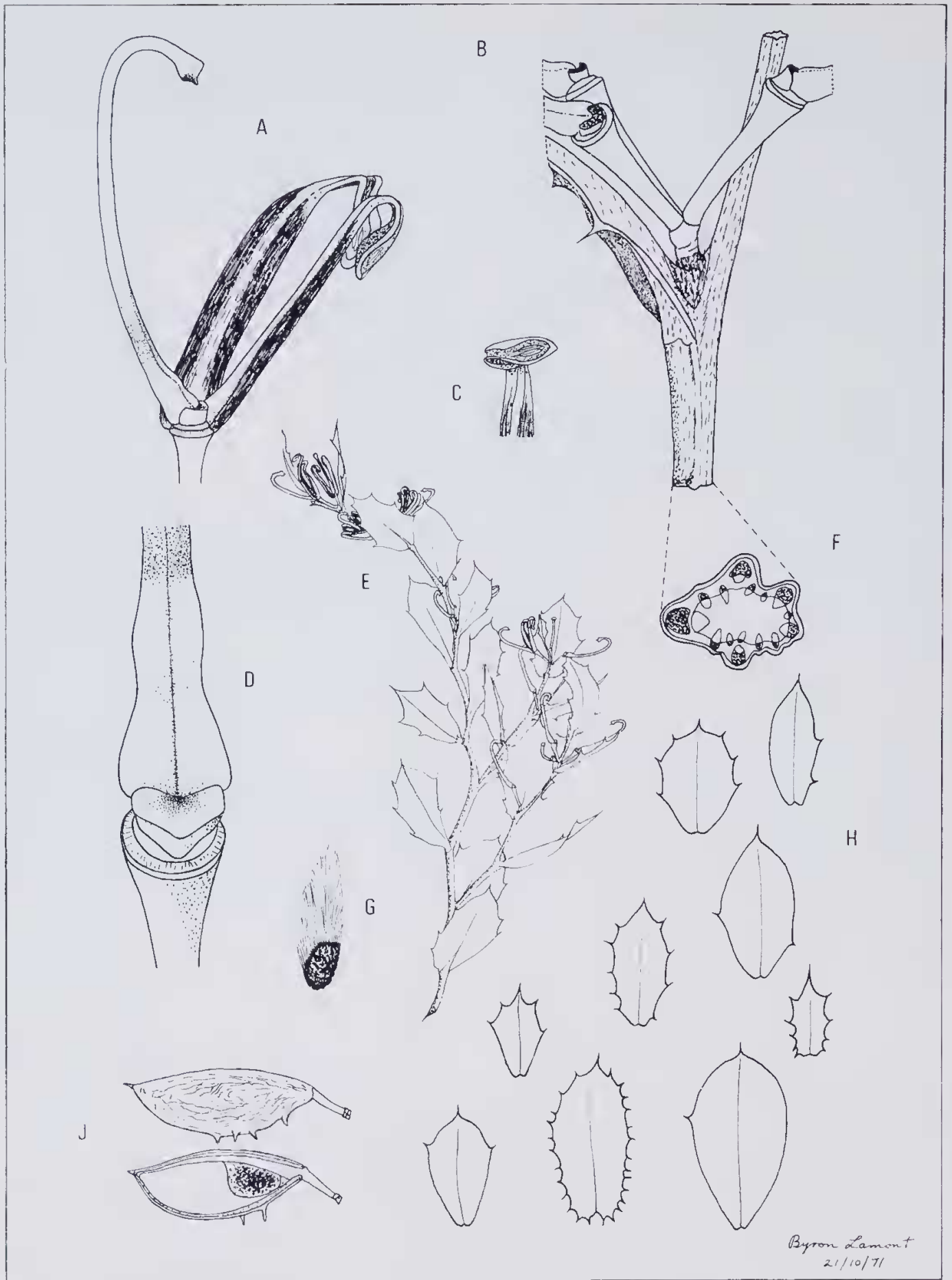


Figure 1.—*Hakea rubriflora* Lamont, sp. nov. A, — half-flower, x 4.5; B, — inflorescence in relation to axis, x 4.5; C, — limb of old perianth segment, x 4.5; D, — ovary, stipe, nectary, torus, adaxial view, x 14; E, — flowering branch, x 0.5; F, — stem, transverse section, x 14; G, — seed, x 0.9; H, sample of leaf shapes, x 0.6; J, — follicle, x 0.9

Isotypes: These have been deposited at the following herbaria: K (2 sheets), PERTH (2 sheets), UWA (2 sheets), AD (2 sheets), MEL (2 sheets).

Other specimens: NE Kalgan R., S Stirling Rd, Aug., George 188; near Porongorup Range, Steenbohm; Chillinup, E Stirling Range, Oct., 1928, Gardner 2161; Chillinup, E Stirling Range, Oct., 1928, Gardner and Blackall; Cheyne Bay turnoff, Hassell Hwy, Oct., Lamont and Newby; (PERTH). 43 ml peg, Chester Pass, Stirling Range, Oct., Lamont; 5 ml S Chillinup Pool, Pallinup R., Oct., Lamont and Newbey; 1 ml NW Boat Harbour, Cheyne Bay, Oct., Lamont and Newby; (PERTH and UWA). N Kalgan R., Albany-Borden Rd, Aug., Brittan; S Stirling Rd, Aug., Baird; junction S Stirling Rd and Albany-Borden Rd, Aug., botany students; Bremer Bay, Speck; Arboretum, Ongerup, Oct., Lamont and Newbey; (UWA).

Discussion

As their fruits are similar, *Hakea rubriflora* is most likely to be confused with *H. pritzelii* and red-flowered forms of *H. prostrata* (see Fig. 1). However, the orange-red perianth segments with red-black margins of *H. rubriflora*, from which its name is derived, are quite distinct. In addition, the species has a three-flowered inflorescence, not 8 to 20 per cluster as in *H. pritzelii* and *H. prostrata*; the pollen presenter is straight, not oblique; the stipe is obturbinate, not cylindrical; the leaves are decurrent, not auriculate and the base of the seed in *H. rubriflora* is unevenly rounded, not acute as in *H. pritzelii* and *H. prostrata*. At the young seedling stage *H. rubriflora* may be determined by the large number of marginal teeth (10-20 per cm) with 1 mm and 0.5 mm long teeth generally alternating, the obtuse-angled stem and appressed trichomes. Young seedlings of *H.*

pritzelii and *H. prostrata* have less than 10 uniform teeth per cm of leaf margin, the stem is evenly rounded and the trichomes are erect.

Hakea rubriflora is endemic to the South-West Botanical Province (after Diels and Pritzel 1905). The species covers a triangular area, the northern boundary extending from north-west of the Stirling Range to at least Esperance (250 miles), and the south-east boundary corresponding with the coastline east of Two Peoples Bay. *H. rubriflora* is restricted to the sandplains where it occurs on soils which range from dry, deep fine sands to seasonally-waterlogged clay-gravel. It is usually codominant with other proteaceous scrub species (after Specht 1970) of similar size. Individual plants flower for little more than two to three weeks during the period August to October. Because of the shrub's foetid odour when in flower it is known locally as the stinking *Hakea*.

Acknowledgements

Thanks are extended to Dr. N. M. Pritchard, visiting lecturer in the Botany Department, University of Western Australia, from the University of Aberdeen, Scotland, and to Mr. A. S. George of the Western Australian Herbarium for their assistance with the manuscript. This work was carried out during tenure of a Commonwealth Post-graduate Research Award in the Botany Department, University of Western Australia.

References

- Bentham, G. (1870).—*Flora Australiensis*, 5 : 490-492.
Diels, L. and Pritzel, E. (1905).—*Fragmenta Phytographiae occidentalis*. *Bot. Jahrb.* 35: 55-662. (Engler, A. (Ed.) Engelmann, Leipzig).
Specht, R. L. (1970).—*Vegetation*. In "The Australian Environment" 4th ed. Leeper, G. W. (Ed.) C.S.I.R.O. and Melbourne University Press).